

IN THE CLAIMS:

Please amend the claims as follows:

1. (Original) A magnetic coil and pole assembly for controlling motion of a mechanically unattached probe, the assembly comprising:
 - (a) a first magnetic pole carrier including a light transmissive substrate and a plurality of first magnetic pole pieces located on the substrate for applying force to a mechanically unattached magnetic probe;
 - (b) a magnetic drive core being magnetically coupled to the magnetic pole pieces for providing a return path for magnetic flux between the magnetic pole pieces; and
 - (c) a plurality of magnetic coils being wound around the magnetic drive core for conducting current and applying magnetic force to the probe through the pole pieces.
2. (Original) The assembly of claim 1 where the light transmissive substrate of the first magnetic pole carrier comprises a glass material.
3. (Original) The assembly of claim 1 wherein the pole pieces comprise thin film materials patterned on the light transmissive substrate utilizing semiconductor manufacturing techniques.
4. (Original) The assembly of claim 1 wherein the first magnetic pole pieces comprise foil materials cut from foil sheets and attached to the substrate.
5. (Original) The assembly of claim 1 wherein the first magnetic pole pieces comprise three pole pieces located in a first plane and wherein the assembly further comprises a second pole carrier, the second pole carrier including a light

- transmissive substrate and a plurality of second magnetic pole pieces located on the substrate, the second magnetic pole pieces being located in a second plane parallel to the first plane.
6. (Original) The assembly of claim 5 wherein the first magnetic pole pieces include first pole tips forming vertices of a first equilateral triangle located in the first plane and the second magnetic pole pieces include pole tips forming vertices of a second equilateral triangle located in the second plane.
 7. (Original) The assembly of claim 6 wherein the first equilateral triangle is rotated with respect to the second equilateral triangle by an angle of 60°.
 8. (Original) The assembly of claim 1 wherein the first magnetic pole pieces include a first magnetic pole piece and a second magnetic pole piece.
 9. (Original) The assembly of claim 8 wherein the first and second magnetic pole pieces each have a peaked configuration.
 10. (Original) The assembly of claim 1 wherein the magnetic drive core comprises a ring structure including a plurality of tabs, wherein the magnetic coils are wound around the tabs.
 11. (Original) The assembly of claim 10 wherein each tab includes an upper surface that forms a pole face, wherein each pole face is located proximally to one of the first magnetic pole pieces for applying magnetic force to the probe through the pole piece.
 12. (Original) The assembly of claim 11 wherein the cross sectional area formed by the intersection of a pole face and a pole piece is greater than a distance between the pole face and the pole piece.

13. (Original) The assembly of claim 10 wherein the magnetic coils form a central aperture for receiving an objective lens.
14. (Original) The assembly of claim 1 where the magnetic coils include first and second coils located on first and second sides of each pole piece, the first and second coils being wound to present like magnetic poles in the direction of each pole piece.
15. (Original) A magnetic coil and pole assembly for applying magnetic force to a mechanically unattached magnetic probe, the assembly comprising:
 - (a) a first magnetic pole plate including a first light transmissive substrate and a plurality of first magnetic pole pieces located thereon;
 - (b) a second magnetic pole plate including a second light transmissive substrate and a plurality of second magnetic pole pieces located thereon; and
 - (c) a magnetic drive assembly magnetically coupled to the first and second pole pieces for applying magnetic force to a mechanically unattached magnetic probe via the pole pieces.
16. (Original) The assembly of claim 15 wherein the first and second light transmissive substrates each comprise a glass material.
17. (Original) The assembly of claim 15 wherein the first and second magnetic pole pieces comprise thin film materials manufactured using a semiconductor manufacturing technique.
18. (Original) The assembly of claim 15 wherein the first and second magnetic pole pieces comprise foil materials.

19. (Original) The assembly of claim 15 wherein the first magnetic pole pieces are located in a first plane and the second magnetic pole pieces are located in a second plane parallel to the first plane.
20. (Original) The assembly of claim 19 wherein the first magnetic pole pieces include pole tips that form vertices of a first equilateral triangle located in the first plane and wherein the second magnetic pole pieces include pole tips that form vertices of a second equilateral triangle located in the second plane.
21. (Original) The assembly of claim 20 wherein the first equilateral triangle is rotated an angle of 60° with respect to the second equilateral triangle.
22. (Original) The assembly of claim 15 wherein the magnetic drive assembly comprises a first magnetic drive ring core located proximally to the first magnetic pole plate and a second magnetic drive ring core located proximally to the second magnetic pole plate.
23. (Original) The assembly of claim 22 wherein the first and second magnetic drive ring cores include a plurality of tabs and a magnetic coil being wound around each of the tabs.
24. (Original) The assembly of claim 23 wherein each tab includes a first surface that forms a pole face and wherein each pole face is located proximately to one of the magnetic pole pieces.
25. (Original) The assembly of claim 15 wherein the magnetic drive assembly includes first and second magnetic coils located on opposite sides of each pole piece, the first and second coils being wound so that the first and second magnetic coils present like magnetic poles in the direction of each pole piece.

26-51. (Canceled)

52. (New) A magnetic coil and pole assembly for controlling motion of a mechanically unattached probe, the assembly comprising:

- (a) a first magnetic pole carrier including a substrate and a plurality of first magnetic pole pieces located on the substrate for applying force to a mechanically unattached magnetic probe;
- (b) a magnetic drive core being magnetically coupled to and physically separate from the magnetic pole pieces; and
- (c) a plurality of magnetic coils being wound around the magnetic drive core for conducting current and applying magnetic force to the probe through the pole pieces.

53 (New) A magnetic coil and pole assembly for applying magnetic force to a mechanically unattached magnetic probe, the assembly comprising:

- (a) a first magnetic pole plate located in a first plane and including a first light transmissive substrate and a plurality of first magnetic pole pieces located thereon;
- (b) a second magnetic pole plate located in a second plane different from the first plane and including a second light transmissive substrate and a plurality of second magnetic pole pieces located thereon; and
- (c) a magnetic drive assembly magnetically coupled to the first and second pole pieces for applying magnetic force to a mechanically unattached magnetic probe via the pole pieces.